PORRIGE

A cohort study of general practice registrars

Mark Nelson
Julie Bunyard
Stephen Quinn
Danielle Williams

Background
Current general practitioner shortages need to be addressed, especially in areas of need. This study was designed to investigate which registrar characteristics were associated with retention in the field of general practice (and in the region of training).

Method
The authors performed a retrospective cohort study of people who entered general practice training in Tasmania from 1995–2005, and included a cross-sectional survey conducted between November 2008 and April 2009 that assessed the association between baseline characteristics and current field of practice and practice location.

Results
Fifty-four percent of the cohort was working in general practice in Tasmania at the time of the survey. General practice registrars were more likely to be a GP working in Tasmania if they were nonmedically partnered (OR 14.42, p=0.001). They were also more likely to be living in Tasmania if they were older (OR 1.47, p=0.029) or nonmedically partnered (OR 23.4, p=0.014).

Discussion
Regional training providers may best be able to serve their training region by addressing the specific needs of the general practice registrar family unit.

Keywords: general practice, manpower; research, questionnaires; rural health; career mobility

Current Australian general practice workforce shortages need to be addressed. Recent increases in medical undergraduate numbers appear to taking a significant step toward addressing this problem in the medium to long term.[1] A significant proportion of these new cohorts will need to be interested and enrolled in general practice postgraduate training programs. Retention in both the profession and practice is essential to provide the clinical services demanded by the community where the regional training is located.

This study – Predictors Of Regional Retention In General racticE training (PORRIGE) – is a historic cohort study of general practice registrars who commenced general practice training in Tasmania between 1995 and 2005. The primary objective was to investigate whether applicant characteristics can predict the likelihood of graduates continuing to work in general practice in their training region. Secondary objectives included collating information on what happens once a registrar graduates from a general practice training program: How many remain in general practice? How many diversify into nongeneral practitioner work or work in areas of special interest? Do they work part time or full time? Where do they physically practise?

Method

The authors created a database of all people who had commenced training in Tasmania in either The Royal Australian College of General Practitioners (RACGP) Family Medical Program (FMP) or General Practice Training Tasmania (GPTT) training programs between 1995 and 2005 inclusive (n=125). Until 2001, training general practice registrars in Australia was undertaken by the RACGP managed FMP program. From 2002 it became the responsibility of Regional Training Providers (RTPs). In Tasmania GPTT is one of only two Australian RTPs responsible for a whole state.

The authors updated contact information of those identified from FMP and GPTT sources from the Yellow Pages, online medical directories, the internet search engine Google, state medical registration boards, and GPTT personnel. Where possible, practices were telephoned to confirm the correct individual had been identified.

Between November 2008 and April 2009 all those identified by this search were mailed a letter signed by the CEO of GPTT inviting them to participate in the study, and a participant information sheet and consent form. Responders were asked to consent to an investigator accessing their personal GPTT file in order to extract information about their application and training program. Seventy people consented to participate (66% of those who were contacted). Responders were then asked to complete a short questionnaire detailing their personal circumstances at the time of entering training, during training and after completing training. To facilitate optimal participation rates two rounds of reminder letters were sent at 2 week intervals.[2] Sixty-two completed surveys were returned (*Figure 1*).

Ethics approval for the study was obtained from the Tasmanian Health and Medical Human Research Ethics Committee.

Statistical analysis

T-tests and chi square tests were used to compare differences in means and proportions as appropriate. Logistic regression analysis was used to examine the association between putative factors that might affect whether a GP remains in Tasmania or not, adjusted for the potential confounders of age and gender. No

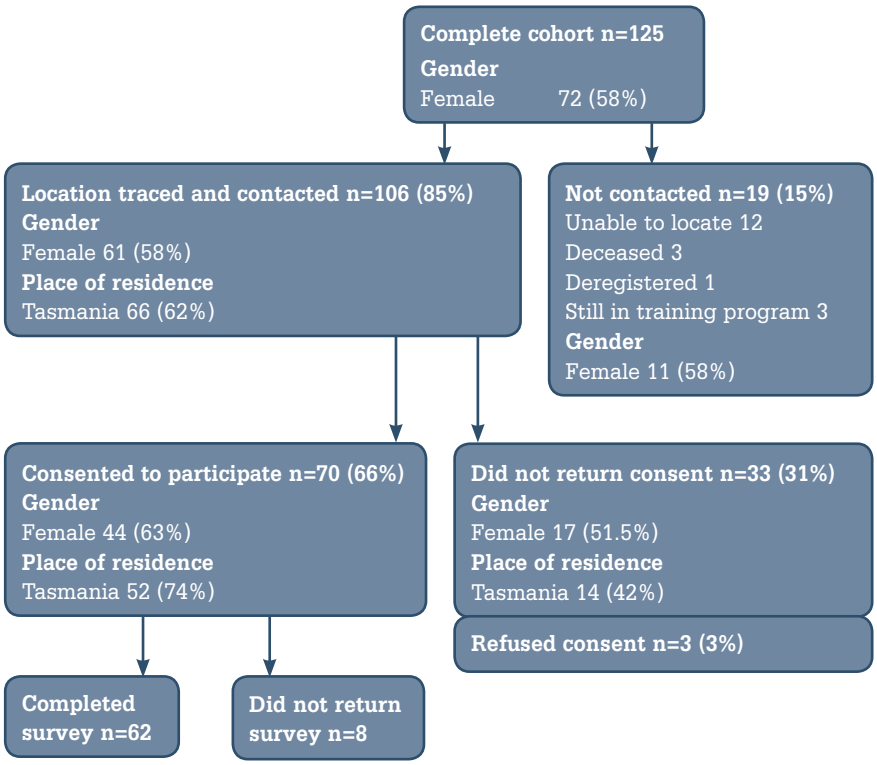

Figure 1. Flowchart of cohort participation

evidence of model violation was found using the Hosmer-Lemeshow Goodness-of-Fit test. A *p* value of <0.05 (two tailed) was considered statistically significant. All statistical analysis was performed on Intercooled Stata 10.0 for Windows (StataCorp LP).

Results

Figure 1 shows cohort characteristics and comparisons of gender and place of residence for those who could be contacted, those who could not be contacted, responders and nonresponders. There were no significant differences between nonresponders and responders with respect to gender (p=0.06) or whether or not they were recent graduates (p=0.65). The participants who were able to be contacted were more likely to consent to participate if they were still living in Tasmania (p<0.001). The authors were unable to identify whether there were any differences in age between responders and nonresponders as this data was unavailable for nonresponders.

Table 1 describes the current work practices of the consented cohort, just over half (54%) of whom were working in Tasmania as a GP at the time of the survey. The remaining members were not living in Tasmania, working exclusively in an area of special interest, in another medical specialty or no longer undertaking clinical work. Areas of special interest and other medical specialties included emergency medicine, geriatrics, sports medicine, medical education, local council medical health officer, nutritional medicine, obstetrics, phlebology, refugee health, skin cancer medicine, surgical assistance, women's health, breast medicine, intensive care, obstetrics and gynaecology, pain medicine, palliative care and psychiatry. Those responders not engaged in any clinical medicine specified illness, public service or maternity leave as reasons. Two responders worked part time in a clinical capacity but also worked in nonclinical areas such as academic general practice and safety and quality work.

Table 2 shows the results of the univariable and multivariable analyses of general practice registrar characteristics associated with training and continuing to live in Tasmania. Registrars were more likely to be living in Tasmania with increasing age (OR 1.47, p=0.029), or if they had a partner who did not work in the medical profession (OR 23.4, p=0.014) compared to those who had a partner who did. Registrars who were international medical graduates (IMGs) compared to GPs who obtained their qualifications in Tasmania were less likely to remain living in Tasmania (OR 0.006, p=0.01). No significant effect was found for gender. Univariable analyses indicated that registrars enrolled in the rural training scheme were likely to leave Tasmania (p=0.009) (results not shown). However, enrolment in the rural training scheme and place of qualification were highly collinear, so enrolment was not included in the multivariable analysis.

Differences were then considered between former registrars still working in Tasmania as

Table 1. Current work practices of consented cohort

Position	Medical workforce		Total
	Full time (n)	Part time (n)	n (%)
GP in Tasmania	20	18	38 (54)
GP not in Tasmania	3	4	7 (10)
Working in area of special interest; living in Tasmania	2	2	4 (6)
Working in area of special interest; not living in Tasmania	3	0	3 (4)
Working in another medical specialty; living in Tasmania	5	0	5 (7)
Working in another medical specialty; not living in Tasmania	2	0	2 (3)
Not doing any clinical medicine; living in Tasmania	N/A	N/A	2 (3)
Not doing any clinical medicine; not living in Tasmania	N/A	N/A	1 (2)
Living in Tasmania work status unknown	–	–	3 (4)
Living elsewhere work status unknown	–	–	5 (7)
Total	35	24	70 (100)

GPs compared to everyone else, such as those former registrars no longer living in Tasmania, those working in other medical specialties, those working only in an area of special interest, and those not working in clinical medicine. *Table 3* shows the results of the univariable and multivariable analyses of registrar characteristics associated with training with GPTT, and continuing to work as a GP in Tasmania at the completion of training, compared with all others. In this analysis the only significant variables related to whether the GP had a partner or whether their partner was also a medical professional. Former registrars were more likely to be working as a GP in Tasmania if their partner was not working in the medical profession compared to those former registrars who had a partner who did work in the medical profession (OR 14.42, p=0.001). General practitioners who were single when they commenced training were also more likely to continue practising than those whose partner worked in the medical profession (OR 40.87, p=0.002). There was no significant difference between GPs who were single or partnered with respect to continuing to practise in Tasmania (p=0.089).

Table 2. GP characteristics associated with training and continuing to live in Tasmania at the completion of training

Characteristic	Univariable		Multivariable†	
	OR	*p* value	OR	*p* value
Place of qualification				
University of Tasmania	1.00		1.00	
Other Australian state	0.28	0.10	0.06	0.14
Overseas	0.16	0.009	0.006	0.010
Partner occupation				
Medical professional	1.00		1.00	
Other professional	4.54	0.03	23.4	0.014
No partner	3.27	0.19	13.2	0.083
Age	1.00		1.00	
	0.99	0.66	1.47	0.029
Gender				
Female (male=reference)	0.72	0.55	1.19	0.86
Had property in Tasmania at the time of commencing training				
Yes (no=reference)	2.96	0.10	0.44	0.47
Had family in Tasmania at the time of commencing training				
Yes (no=reference)	0.56	0.34	0.31	0.33

† Adjusted for all other covariates in this table

Table 3. GP characteristics associated with training in Tasmania, continuing to live in Tasmania and working as a GP at the completion of training

Characteristic	Univariable		Multivariable†	
	OR	*p* value	OR	*p* value
Place of qualification				
University of Tasmania	1.00		1.00	
Other Australian state	0.48	0.29	0.35	0.38
Overseas	0.58	0.38	0.27	0.27
Partner occupation				
Medical professional	1.00		1.00	
Other professional	8.17	0.002	14.42	0.001
No partner	11.7	0.009	40.87	0.002
Age	1.00		1.00	
	0.98	0.44	1.05	0.46
Gender				
Female (male=reference)	0.57	0.27	1.18	0.82
Had property in Tasmania at the time of commencing training				
Yes (no=reference)	1.61	0.41	0.52	0.49
Had family in Tasmania at the time of commencing training				
Yes (no=reference)	0.77	0.65	0.28	0.15

† Adjusted for all other covariates in this table

Discussion

Approximately half of respondents (54%) who were former GPTT registrars and who commenced training between 1995 and 2005 inclusive, were working in Tasmania as GPs at the time of this study. This is a significant attrition of general practice registrars who were lost from regional general practice due to relocation, or possible contributing factors including cultural integration issues, partner medical training or employment, working in an area of special interest, change of medical specialty, or no longer working in clinical medicine.

Previous research supports the findings of this study, including studies that report on the many difficulties experienced by IMGs when attempting to integrate into the Australian medical community, particularly in rural areas. Tasmania is the least urbanised and least populated state of Australia. Difficulties for IMGs include problems with language and communication;[3,4] cultural differences, such as adapting clinical skills and consulting style to the Australian context[4] or understanding the Australian healthcare system;[4,5] and personal issues including family

support.[5] Compulsory rural service for IMGs dictates that they must spend some time working in areas of special need. However, once that time is served, the needs of self and family may dictate a change of practice location. Smaller populated areas are less likely to provide the support for spousal employment, educational opportunity or cultural assimilation than a larger centre.

Earlier research on choice of practice location by general practice graduates has emphasised the importance of family influence. A survey of RACGP graduates from between 1994 and 1996 found the most important influence on career development was 'family/domestic circumstances'.[6] Likewise, two surveys by the Australian Medical Workforce Advisory Committee in 2004 investigated career decision making by postgraduate doctors.[7] When looking at the influences on practice location, respondents overall ranked 'family or social considerations' first, followed respectively by 'consideration for my career', 'lifestyle', 'consideration for my partner's career' and 'other'.

Tasmania has a current GP shortage and is an area of special need with a rapidly aging population, an aging general practice workforce, an increasing prevalence of chronic diseases, and over one-third of the population living in rural or remote areas of the state.[8] It is therefore important for this state and any other Australian region with similar circumstances to develop strategies that can increase retention of doctors after training completion. The ability to predict those applicants more likely to stay on in a training region could play a role in addressing the need in areas of GP shortage, potentially with important implications for training providers and registrar selection.

Study limitations

This study is subject to ascertainment bias, as individuals who graduated more recently and live in Tasmania are more likely to be traced, and those living in Tasmania were more likely to consent to participate than those living elsewhere ($p<0.001$). Being retrospective, it is also subject to other biases such as information recall bias.

Conclusion

Regional training providers may best be able to serve their training region by addressing the specific needs of the general practice registrar, such as cultural integration and support of IMGs and their families, and by addressing medical partners' training and employment needs.

Authors

Mark Nelson MBBS(Hons), MFM, FRACGP, FAFPHM, PhD, is Chair, Discipline of General Practice, School of Medicine, University of Tasmania and Senior Fellow, Menzies Research Institute Tasmania. mark.nelson@utas.edu.au

Julie Bunyard was a project officer, Menzies Research Institute, University of Tasmania

Stephen Quinn PhD, is Research Fellow, Menzies Research Institute, Hobart, Tasmania

Danielle Williams RN, BN(Hons), is a PhD candidate, Menzies Research Institute, University of Tasmania.

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correspondence **afp@racgp.org.au**